```
//---------------------------------------//---------------------------------------------//
"Analyzing Condenser #2-600 ton Single Effect Carrier Absorber"
f$='Steam_Iapws'
m$='AirH2O'


"Supply Water Properties"
T11= 52.5 [F] "Constant for both days Input from ATS"
F11= 1136 [gpm]*convert (gpm,ft^3/s) " Constant for both days, Input from ATS"


"!Inputs via Excel Sheet"
"Outside properties"
P_atm=29.97 [psia]" Input from ATS"
T_amb= 57.114 [F] "Input from ATS"
phi_amb= 0.20 "Input from ATS "
h11= 19.48654286 [Btu/lb_m] "Input from ATS"


"Evaporator Loop Inputs"
P21= 83.26783333 [psi] "Input from ATS System"
T_21= 52.5 [F] "Input from ATS System"
P_22= 82.52823333 [psi] "Input from ATS System"
P_23= 30.99405 [psi] "Input from ATS System"
T_24= 44.3 [F] "Constant value for both days Input from ATS System"
P511= 82.23185 [psi] "Input from ATS"
P521= 99.76058333 [psi] "Input from ATS"
P512= 128.6237143 [psi] "Input from ATS"


"Condenser Loop Inputs"
T22= 275 [F] "Input from ATS System"
T23= 190.2467143 [F] "Input from ATS System"
P24= 12.86052857 [psi] "Input from ATS System"
P25=50.1991 [psi] "Constant value for both days Input from ATS System"
T25= 83 [F] " Constant value for both days Input from ATS System"
F22=1409 [gpm]*convert (gpm,ft^3/s) "Input from ATS"
P26= 12.48832857 [psi] "Input from ATS"
T26= 95 [F] "Input from ATS"
h21=19.156 [Btu/lb_m] "Input from ATS"


"Electric Loads of the Instrumentation"
E21=500 [kWh]*convert(kWh,btu) "Primary pump power (Input)"
E22= 6.7 [hp]*convert(hp, btu/s) " Chiller Power (Input)"
E23 =50 [kWh]*convert(kWh, btu) "CT #2 Power (Input)"
E24= 69.7 [kWh]*convert(kWh,btu) "Condenser loop pump power"
E51 = 500 [kWh]*convert(kWh,btu) "Secondary pump #1 power"
E52= 500 [kWh]*convert(kWh,btu) "Secondary pump #2 power"


"!State 1 entering the primary pump"

P_2[1]= P21
T_2[1]=T11
x_2[1]= 0
h_2[1]=enthalpy(f$,P=P_2[1],T=T_2[1])


"!State 2 Primary pump Outlet/ Evaporator inlet"
T_2[2]=T_21
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```
P_2[2]=P_22
h_2[2]=enthalpy(f$, T=T_2[2], P=P_2[2])

"!State 3 Evaporator Outlet"
P_2[3]=P_23
T_2[3]=T_24
F21=1136 [gpm]*convert(gpm,ft^3/s) "Input from ATS System"
rho_2[3]=density(f$, T=T_2[3], P=P_2[3])
h_2[3]=enthalpy(f$, T=T_2[3], P=P_2[3])
m_dot_CH2_EVAP=F21*rho_2[3]

"!State 4 Steam Inlet"
T_2[4]=T22
x_2[4]= 1 "Assumption"
P_2[4]=14 [psi]
m_dot_2st= 9450 [lb_m/h]*convert(lb_m/h,lb_m/s)
h_2[4]=enthalpy(f$,T=T_2[4],P=P_2[4])

"!State 5 Steam Outlet"
T_2[5]=T23
P_2[5]=14 [psi]
x_2[5]= 1 "Assumption"
h_2[5]=enthalpy(f$,T=T_2[5],P=P_2[5])

"!State 6 Condenser Water pump #2 Inlet"
P_2[6]=P24
T_2[6]=83.4 [F]
x_2[6]= 0 "Assumption"
h_2[6]=enthalpy(f$,T=T_2[6],x=x_2[6])

"!State 7 Condenser Water pump #2 Outlet/ Heat Exchanger Inlet"
P_2[7]=P25
T_2[7]=T25

h_2[7]=enthalpy(f$,T=T_2[7], x=0)
rho_2[7]=density(f$,T=T_2[7], x=0)
m_dot_CH2_COND=F22*rho_2[7]


"!State 8 CT #2 Return supply"
P_2[8]= P26
T_2[8]=T26
h_2[8]=enthalpy(f$,T=T_2[8],x=0)

"!State 9 Secondary pump #1 Inlet"
P_2[9]= P511
x_2[9]=0
h_2[9]=enthalpy(f$,P=P_2[9],x=x_2[9])

"!State 10 Secondary pump #2 Inlet"
P_2[10]=P521
x_2[10]=0
h_2[10]=enthalpy(f$,P=P_2[10],x=x_2[10])

"!State 11 Secondary pump  #1 & #2 Outlet"
P_2[11]=P512
x_2[11]=0
h_2[11]=enthalpy(f$,P=P_2[11],x=x_2[11])

"!State 12 Make Up-Water"
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```
M21= 300 [gpm]*convert(gpm,ft^3/s)

"!State 13 CT#2 Outlet"
h_2[13]=h21
x_2[13]=1
T_2[13]=89 [F] "Input from ATS "
h_2_13prime=enthalpy(m$,P=P_atm,T=T_2[13],w=omega_2[14])
omega_2[13]=humrat(m$,P=P_atm,T=T_2[13],R=phi_amb)

"!State 14 CT #2 Fan Entrance"
h11=h_2[14]
T_2[14]=T_amb
V_dot_air_2= 163100 [cfm]*convert(cfm,ft^3/s)
nu_av=volume(m$,P=P_atm,T=T_amb,R=phi_amb)
m_dot_air_2=V_dot_air_2/nu_av
omega_2[14]=humrat(m$,P=P_atm,T=T_2[14],R=phi_amb)

"Chiller 2 Analysis"

"Finding the work of the pumps"
W_p2[1]=m_dot_CH2_EVAP*(h_2[1]-h_2[2])
W_p2[10]=m_dot_CH2_EVAP*(h_2[10]-h_2[11])
W_p2[9]=m_dot_CH2_EVAP*(h_2[9]-h_2[11])


"Heat transfer rate of the evaporator of chiller 2"
 Q_dot_CH2_EVAP=m_dot_CH2_EVAP*(h_2[2]-h_2[3])

"Heat transfer rate of the condenser of chiller 2"
Q_dot_CH2_COND=m_dot_CH2_COND*(h_2[7]-h_2[8])

Q_dot_CH2_st=m_dot_2st*(h_2[4]-h_2[5])

"COP_c Performance of CH-2"
COP_c_2=(Q_dot_CH2_EVAP)/(Q_dot_CH2_st+E22)

"Cooling Tower Analysis"

"Finding the cooling tower load of chiller 2"
Q_dot_load_CT2=m_dot_CH2_COND*(h_2[8]-h_2[6])

"Finding the heat transfer rate of the air through CT-2"
Q_dot_CT_2=m_dot_air_2*(h_2[13]-h_2[14])

"Dimensionless parameters of Cooling Tower 2"
SHR_CT2=(h_2_13prime-h_2[14])/(h_2[8]-h_2[14])

"Cooling Tower Effectiveness (heat)"
Epsilon_21=(h_2[13]-h_2[14])/(h_2[8]-h_2[14])

"Cooling Tower Effectiveness (mass)"
Epsilon_22=(omega_2[13]-omega_2[14])/(humrat(m$,P=P_atm,T=T_2[8],R=1)-omega_2[14])

//---------------------------------------------------------------------------//---------------------------------------------------------------------------
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"Analyzing Condenser #3-1200 ton Double Effect Absorber"


"Electric Loads of the Instrumentation"
E31=500 [kWh]*convert(kWh,btu) "Primary pump power (Input)"
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```
E32= 50 [kWh]*convert(kWh, btu) " Chiller Power (Input)"
E33 =50 [kWh]*convert(kWh, btu) "CT #3 Power (Input)"
E34= 69.7 [kWh]*convert(kWh,btu) "Condenser loop pump power"


"!State 1 entering the primary pump"
P31= 55 [psi] "Input from ATS System"
P_3[1]= P31
T_3[1]=T11
x_3[1]= 0
h_3[1]=enthalpy(f$,P=P_3[1],T=T_3[1])


"!State 2 Primary pump Outlet/ Evaporator inlet"
T_31= 55 [F] "Input from ATS System"
T_3[2]=T_31
P_32= 60 [psi] "Input from ATS System"
P_3[2]=P_32
h_3[2]=enthalpy(f$, T=T_3[2], P=P_3[2])

"!State 3 Evaporator Outlet"
P_33= 75 [psi] "Input from ATS System"
P_3[3]=P_33
T_34=45 [F] "Input from ATS System"
T_3[3]=T_34
F31=1000 [gpm]*convert(gpm,ft^3/s) "Input from ATS System"
rho_3[3]=density(f$, T=T_3[3], P=P_3[3])
h_3[3]=enthalpy(f$, T=T_3[3], P=P_3[3])
m_dot_CH3_EVAP=F31*rho_3[3]

"!State 4 Steam Inlet"
T32= 100 [F] "Input from ATS System"
T_3[4]=T32
x_3[4]= 1 "Assumption"

"!State 5 Steam Outlet"
T33= 200 [F] "Input from ATS System"
T_3[5]=T33
x_3[5]= 1 "Assumption"

"!State 6 Condenser Water pump #2 Inlet"
P34= 60 [psi] "Input from ATS System"
P_3[6]=P34
x_3[6]= 0 "Assumption"
h_3[6]=enthalpy(f$,P=P_3[6],x=x_3[6])

"!State 7 Condenser Water pump #2 Outlet/ Heat Exchanger Inlet"
P35=65 [psi] "Input from ATS System"
P_3[7]=P35
T35= 60 [F] "Input from ATS System"
T_3[7]=T35
F32=1000 [gpm]*convert (gpm,ft^3/s) "Input from ATS"
h_3[7]=enthalpy(f$,T=T_3[7], P=P_3[7])
rho_3[7]=density(f$,T=T_3[7], P=P_3[7])
m_dot_CH3_COND=F32*rho_3[7]


"!State 8 CT #3 Return supply"
P36= 70 [psi] "Input from ATS"
P_3[8]= P36
```

```
T36= 67 [F] "Input from ATS"
T_3[8]=T36
h_3[8]=enthalpy(f$,T=T_3[8],P=P_3[8])

"!State 9 Secondary pump #1 Inlet"
P511=P_3[9]
x_3[9]=0
h_3[9]=enthalpy(f$,P=P_3[9],x=x_3[9])

"!State 10 Secondary pump #2 Inlet"
P_3[10]=P521
x_3[10]=0
h_3[10]=enthalpy(f$,P=P_3[10],x=x_3[10])

"!State 11 Secondary pump  #1 & #2 Outlet"
P_3[11]=P512
x_3[11]=0
h_3[11]=enthalpy(f$,P=P_3[11],x=x_3[11])

"!State 12 Make Up-Water"
M31= 300 [gpm]*convert(gpm,ft^3/s)

"!State 13 CT#2 Outlet"
h31=60 [Btu/lb_m] "Input from ATS"
h_3[13]=h31
T_3[13]=89 [F] "Input"
h_3_13prime=enthalpy(m$,P=P_atm,T=T_3[13],w=omega_3[14])
omega_3[13]=humrat(m$,P=P_atm,T=T_3[13],R=phi_amb)

"!State 14 CT #3 Fan Entrance"
T_3[14]=T_amb
h_3[14]=enthalpy(m$,T=T_amb,P=P_atm,R=phi_amb)
V_dot_air_3= 100 [cfm]*convert(cfm,ft^3/s)
m_dot_air_3=V_dot_air_3/nu_av
omega_3[14]=humrat(m$,P=P_atm,T=T_3[14],R=phi_amb)

"Chiller 3 Analysis"

"Finding the work of the pumps"
W_p3[1]=m_dot_CH3_EVAP*(h_3[1]-h_3[2])
W_p3[10]=m_dot_CH3_EVAP*(h_3[10]-h_3[11])
W_p3[9]=m_dot_CH3_EVAP*(h_3[9]-h_3[11])


"Heat transfer rate of the evaporator of chiller 3"
 Q_dot_CH3_EVAP=m_dot_CH3_EVAP*(h_3[2]-h_3[3])

"Heat transfer rate of the condenser of chiller 3"
Q_dot_CH3_COND=m_dot_CH3_COND*(h_3[7]-h_3[8])

"COP_c Performance of CH3"
COP_c_3=(Q_dot_CH3_EVAP)/(Q_dot_CH3_COND+W_p3[1]+W_p3[9]+W_p3[10])

"Cooling Tower Analysis"

"Finding the cooling tower load of chiller 3"
Q_dot_load_CT3=m_dot_CH3_COND*(h_3[8]-h_3[6])

"Finding the heat transfer rate of the air through CT-3"
Q_dot_CT_3=m_dot_air_3*(h_3[13]-h_3[14])
```

```
"Dimensionless parameters of Cooling Tower 3"
 SHR_CT3=(h_3_13prime-h_3[14])/(h_3[8]-h_3[14])

"Cooling Tower Effectiveness (heat)"
Epsilon_31=(h_3[13]-h_3[14])/(h_3[8]-h_3[14])

"Cooling Tower Effectiveness (mass)"
Epsilon_32=(omega_3[13]-omega_3[14])/(humrat(m$,P=P_atm,T=T_3[8],R=1)-omega_3[14])

//---------------------------------------------------------------------------//---------------------------------------------------------------------------
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"Analyzing Condenser #4-1200 ton Centrifugal"


"Electric Loads of the Instrumentation"
E41=500 [kWh]*convert(kWh,btu) "Primary pump power (Input)"
E42= 50 [kWh]*convert(kWh, btu) " Chiller Power (Input)"
E43 =50 [kWh]*convert(kWh, btu) "CT #3 Power (Input)"
E44= 50 [kWh]*convert(kWh, btu) "Condensor Pump"


"!State 1 entering the primary pump"
P41= 55 [psi] "Input from ATS System"
P_4[1]= P41
T_4[1]=T11
x_4[1]= 0
h_4[1]=enthalpy(f$,P=P_4[1],T=T_4[1])


"!State 2 Primary pump Outlet/ Evaporator inlet"
T_41= 55 [F] "Input from ATS System"
T_4[2]=T_41
P_42= 60 [psi] "Input from ATS System"
P_4[2]=P_42
h_4[2]=enthalpy(f$, T=T_4[2], P=P_4[2])

"!State 3 Evaporator Outlet"
P_43= 75 [psi] "Input from ATS System"
P_4[3]=P_43
T_44=45 [F] "Input from ATS System"
T_4[3]=T_44
F41=1000 [gpm]*convert(gpm,ft^3/s) "Input from ATS System"
rho_4[3]=density(f$, T=T_4[3], P=P_4[3])
h_4[3]=enthalpy(f$, T=T_4[3], P=P_4[3])

m_dot_CH4_EVAP=F41*rho_4[3]


"!State 4 Condenser Water pump #2 Inlet"
P44= 60 [psi] "Input from ATS System"
P_4[4]=P34
x_4[4]= 0 "Assumption"
h_4[4]=enthalpy(f$,P=P_4[4],x=x_4[4])

"!State 5 Condenser Water pump #2 Outlet/ Heat Exchanger Inlet"
P45=65 [psi] "Input from ATS System"
P_4[5]=P35
T45= 60 [F] "Input from ATS System"
T_4[5]=T35
```

```
F42=1000 [gpm]*convert (gpm,ft^3/s) "Input from ATS"
h_4[5]=enthalpy(f$,T=T_4[5], P=P_4[5])
rho_4[5]=density(f$,T=T_4[5], P=P_4[5])
m_dot_CH4_COND=F42*rho_4[5]

"!State 6 CT #4 Return supply"
P46= 70 [psi] "Input from ATS"
P_4[6]= P46
T46= 67 [F] "Input from ATS"
T_4[6]=T46
h_4[6]=enthalpy(f$,T=T_4[6],P=P_4[6])


"!State 9 Secondary pump #1 Inlet"
P_4[9]= P511
x_4[9]=0
h_4[9]=enthalpy(f$,P=P_4[9],x=x_4[9])

"!State 10 Secondary pump #2 Inlet"
P_4[10]=P521
x_4[10]=0
h_4[10]=enthalpy(f$,P=P_4[10],x=x_4[10])

"!State 11 Secondary pump  #1 & #2 Outlet"
P_4[11]=P512
x_4[11]=0
h_4[11]=enthalpy(f$,P=P_4[11],x=x_4[11])

"!State 12 Make Up-Water"
M41= 300 [gpm]*convert(gpm,ft^3/s)

"!State 13 CT#4 Outlet"
h41=60 [Btu/lb_m] "Input from ATS"
h_4[13]=h31
T_4[13]=89 [F] "Input"
h_4_13prime=enthalpy(m$,P=P_atm,T=T_4[13],w=omega_4[14])
omega_4[13]=humrat(m$,P=P_atm,T=T_4[13],R=phi_amb)

"!State 14 CT #4 Fan Entrance"
T_4[14]=T_amb
h_4[14]=enthalpy(m$,T=T_amb,P=P_atm,R=phi_amb)
V_dot_air_4= 10000 [cfm]*convert(cfm,ft^3/s)
m_dot_air_4=V_dot_air_4/nu_av
omega_4[14]=humrat(m$,P=P_atm,T=T_4[14],R=phi_amb)

"Chiller 4 Analysis"

"Finding the work of the pumps"
W_p4[1]=m_dot_CH4_EVAP*(h_4[1]-h_4[2])
W_p4[10]=m_dot_CH4_EVAP*(h_4[10]-h_4[11])
W_p4[9]=m_dot_CH4_EVAP*(h_4[9]-h_4[11])


"Heat transfer rate of the evaporator of chiller 4"
 Q_dot_CH4_EVAP=m_dot_CH4_EVAP*(h_4[2]-h_4[3])

"Heat transfer rate of the condenser of chiller 4"
Q_dot_CH4_COND=m_dot_CH4_COND*(h_4[5]-h_4[6])

"COP_c Performance of CH-2"
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COP_c_4=(Q_dot_CH4_EVAP)/(Q_dot_CH4_COND+W_p4[1]+W_p4[9]+W_p4[10])

"Cooling Tower Analysis"

"Finding the cooling tower load of chiller 4"
Q_dot_load_CT4=m_dot_CH4_COND*(h_4[6]-h_4[4])

"Finding the heat transfer rate of the air through CT-4"
Q_dot_CT_4=m_dot_air_4*(h_4[13]-h_4[14])

"Dimensionless parameters of Cooling Tower 4"
SHR_CT4=(h_4_13prime-h_4[14])/(h_4[6]-h_4[14])

"Cooling Tower Effectiveness (heat)"
Epsilon_41=(h_4[13]-h_4[14])/(h_4[6]-h_4[14])

"Cooling Tower Effectiveness (mass)"
Epsilon_42=(omega_4[13]-omega_4[14])/(**humrat**(m$,***P***=P_atm,***T***=T_4[6],***R***=1)-omega_4[14])

SOLUTION

Unit Settings: Eng F psia mass deg

$COP_{c,2}$ = 0.4916
$COP_{c,3}$ = -0.1578
$COP_{c,4}$ = -0.1578
E21 = 1.706E+06 [Btu]
E22 = 4.735 [btu/s]
E23 = 170607 [Btu]
E24 = 237826 [Btu]
E31 = 1.706E+06 [Btu]
E32 = 170607 [Btu]
E33 = 170607 [Btu]
E34 = 237826 [Btu]
E41 = 1.706E+06 [Btu]
E42 = 170607 [Btu]
E43 = 170607 [Btu]
E44 = 170607 [Btu]
E51 = 1.706E+06 [Btu]
E52 = 1.706E+06 [Btu]
ε_{21} = -0.007589
ε_{22} = 0.1134
ε_{31} = 2.204
ε_{32} = 0.3153
ε_{41} = 2.204
ε_{42} = 0.3153
f$ = 'Steam_Iapws'
F11 = 2.531 [ft^3/s]
F21 = 2.531 [ft^3/s]
F22 = 3.139 [ft^3/s]
F31 = 2.228 [ft^3/s]
F32 = 2.228 [ft^3/s]
F41 = 2.228 [ft^3/s]
F42 = 2.228 [ft^3/s]
h11 = 19.49 [Btu/lb_m]
h21 = 19.16 [Btu/lb_m]
h31 = 60 [Btu/lb_m]
h41 = 60 [Btu/lb_m]
$h_{2,13prime}$ = 22.4 [Btu/lb_m]
$h_{3,13prime}$ = 22.4 [Btu/lb_m]
$h_{4,13prime}$ = 22.4 [Btu/lb_m]
m$ = 'AIRH2O'
M21 = 0.6684 [ft^3/s]
M31 = 0.6684 [ft^3/s]
M41 = 0.6684 [ft^3/s]
$\dot{m}_{2st}$ = 2.625 [lb_m/s]
$\dot{m}_{air,2}$ = 424.8 [lb_m/s]
$\dot{m}_{air,3}$ = 0.2605 [lb_m/s]
$\dot{m}_{air,4}$ = 26.05 [lb_m/s]
$\dot{m}_{CH2,COND}$ = 195.2 [lb_m/s]
$\dot{m}_{CH2,EVAP}$ = 158 [lb_m/s]
$\dot{m}_{CH3,COND}$ = 139 [lb_m/s]
$\dot{m}_{CH3,EVAP}$ = 139.1 [lb_m/s]
$\dot{m}_{CH4,COND}$ = 139 [lb_m/s]
$\dot{m}_{CH4,EVAP}$ = 139.1 [lb_m/s]
ν_{av} = 6.398 [ft^3/lb_m]
P21 = 83.27 [psi]
P24 = 12.86 [psi]
P25 = 50.2 [psi]
P26 = 12.49 [psi]
P31 = 55 [psi]
P34 = 60 [psi]
P35 = 65 [psi]
P36 = 70 [psi]
P41 = 55 [psi]
P44 = 60 [psi]
P45 = 65 [psi]
P46 = 70 [psi]
P511 = 82.23 [psi]

P512 = 128.6 [psi]
ϕ_{amb} = 0.2
P_{23} = 30.99 [psi]
P_{33} = 75 [psi]
P_{43} = 75 [psi]
$\dot{Q}_{CH2,COND}$ = -2339 [Btu/s] {-701.6 [tons]}
$\dot{Q}_{CH2,st}$ = 2685 [Btu/s]
$\dot{Q}_{CH3,EVAP}$ = 1387 [Btu/s] {416.2 [tons]}
$\dot{Q}_{CH4,EVAP}$ = 1387 [Btu/s] {416.2 [tons]}
$\dot{Q}_{CT,3}$ = 11.79 [Btu/s] {3.537 [tons]}
$\dot{Q}_{load,CT2}$ = 2261 [Btu/s] {678.3 [tons]}
$\dot{Q}_{load,CT4}$ = -31538 [Btu/s] {-9461 [tons]}
SHR_{CT3} = 0.3732
T11 = 52.5 [F]
T23 = 190.2 [F]
T26 = 95 [F]
T33 = 200 [F]
T36 = 67 [F]
T46 = 67 [F]
T_{24} = 44.3 [F]
T_{34} = 45 [F]
T_{44} = 45 [F]
$\dot{V}_{air,2}$ = 2718 [ft^3/s]
$\dot{V}_{air,4}$ = 166.7 [ft^3/s]

P521 = 99.76 [psi]
P_{22} = 82.53 [psi]
P_{32} = 60 [psi]
P_{42} = 60 [psi]
P_{atm} = 29.97 [psia]
$\dot{Q}_{CH2,EVAP}$ = 1322 [Btu/s] {396.6 [tons]}
$\dot{Q}_{CH3,COND}$ = -974.3 [Btu/s] {-292.3 [tons]}
$\dot{Q}_{CH4,COND}$ = -974.3 [Btu/s]
$\dot{Q}_{CT,2}$ = -140.4 [Btu/s] {-42.13 [Tons]}
$\dot{Q}_{CT,4}$ = 1179 [Btu/s] {353.7 [tons]}
$\dot{Q}_{load,CT3}$ = -31538 [Btu/s] {-9461 [tons]}
SHR_{CT2} = 0.06684
SHR_{CT4} = 0.3732
T22 = 275 [F]
T25 = 83 [F]
T32 = 100 [F]
T35 = 60 [F]
T45 = 60 [F]
T_{21} = 52.5 [F]
T_{31} = 55 [F]
T_{41} = 55 [F]
T_{amb} = 57.11 [F]
$\dot{V}_{air,3}$ = 1.667 [ft^3/s]

No unit problems were detected.

KEY VARIABLES

$\dot{Q}_{CH2,EVAP}$ = 1322 [Btu/s] {396.6 [tons]}	*Heat exchange rate through the evaporator of CH-2*
$\dot{Q}_{CH2,COND}$ = -2339 [Btu/s] {-701.6 [tons]}	*Heat exchange rate through the condenser of CH-2*
$\dot{Q}_{load,CT2}$ = 2261 [Btu/s] {678.3 [tons]}	*CT-2 Load*
$\dot{Q}_{CT,2}$ = -140.4 [Btu/s] {-42.13 [Tons]}	*Heat transfer rate of the air through CT-2*
SHR_{CT2} = 0.06684	*Sensible Heat Ratio of CT-2*
ε_{21} = -0.007589	*CT-2 effectiveness (heat)*
ε_{22} = 0.1134	*CT-2 effectiveness (mass)*
$COP_{c,2}$ = 0.4916	*COP_c rating of CH-2*

$\dot{Q}_{CH3,EVAP}$ = 1387 [Btu/s] {416.2 [tons]}	*Heat exchange rate through the evaporator of CH 3*
$\dot{Q}_{CH3,COND}$ = -974.3 [Btu/s] {-292.3 [tons]}	*Heat exchange rate through the condensor of CH 3*
$\dot{Q}_{CT,3}$ = 11.79 [Btu/s] {3.537 [tons]}	*Heat transfer rate of air*
$\dot{Q}_{load,CT3}$ = -31538 [Btu/s] {-9461 [tons]}	*CT 3 load*
SHR_{CT3} = 0.3732	*Sensible heat ratio CT 3*
ε_{31} = 2.204	*CT Effectiveness (heat)*
ε_{32} = 0.3153	*CT Effectiveness (mass)*
$COP_{c,3}$ = -0.1578	*COP_c rating of CH 3*

$\dot{Q}_{CT,4}$ = 1179 [Btu/s] {353.7 [tons]}	*Heat transfer rate of air*
$\dot{Q}_{CH4,COND}$ = -974.3 [Btu/s]	*Heat exchanged through the condensor of CH 4*
$\dot{Q}_{CH4,EVAP}$ = 1387 [Btu/s] {416.2 [tons]}	*Heat exchange rate through the evaporator of CH 4*
$\dot{Q}_{load,CT4}$ = -31538 [Btu/s] {-9461 [tons]}	*CT 4 load*
SHR_{CT4} = 0.3732	*Sensible heat ratio CT 4*
ε_{41} = 2.204	*CT Effectiveness (heat)*
ε_{42} = 0.3153	*CT Effectiveness (mass)*

$COP_{c,4}$ = -0.1578 *COP_c rating of CH 4*

Arrays Table: Main

	$T_{2,i}$ [F] {[]}	$P_{2,i}$ [psi] {[]}	$h_{2,i}$ [Btu/lb$_m$] {[]}	$x_{2,i}$ [dim] {[]}	$\rho_{2,i}$ [lb$_m$/ft^3] {[]}	$\omega_{2,i}$	$T_{3,i}$ [F] {[]}	$P_{3,i}$ [psi] {[]}
1	52.5 {0}	83.27 {0}	20.81 {0}	0 {0}			52.5 {0}	55 {0}
2	52.5 {0}	82.53 {0}	20.81 {0}				55 {0}	60 {0}
3	44.3 {0}	30.99 {0}	12.44 {0}		62.43 {0}		45 {0}	75 {0}
4	275 {0}	14 {0}	1181 {0}	1 {0}			100 {0}	
5	190.2 {0}	14 {0}	158.3 {0}	1 {0}			200 {0}	
6	83.4 {0}	12.86 {0}	51.46 {0}	0 {0}				60 {0}
7	83 {0}	50.2 {0}	51.06 {0}		62.18 {0}		60 {0}	65 {0}
8	95 {0}	12.49 {0}	63.04 {0}				67 {0}	70 {0}
9		82.23 {0}	284.1 {0}	0 {0}				82.23 {0}
10		99.76 {0}	298.3 {0}	0 {0}				99.76 {0}
11		128.6 {0}	318.1 {0}	0 {0}				128.6 {0}
12								
13	89 {0}		19.16 {0}	1 {0}		0.002824 {é↑	89 {0}	
14	57.11 {0}		19.49 {0}			0.0009609 {é↑	57.11 {0}	

Arrays Table: Main

	$h_{3,i}$ [Btu/lb$_m$] {[]}	$x_{3,i}$ [dim] {[]}	$\rho_{3,i}$ [lb$_m$/ft^3] {[]}	$\omega_{3,i}$	$T_{4,i}$ [F] {[]}	$P_{4,i}$ [psi] {[]}	$h_{4,i}$ [Btu/lb$_m$] {[]}	$x_{4,i}$ [dim] {[]}
1	20.73 {0}	0 {0}			52.5 {0}	55 {0}	20.73 {0}	0 {0}
2	23.25 {0}				55 {0}	60 {0}	23.25 {0}	
3	13.27 {0}		62.43 {0}		45 {0}	75 {0}	13.27 {0}	
4		1 {0}				60 {0}	262.2 {0}	0 {0}
5		1 {0}			60 {0}	65 {0}	28.26 {0}	
6	262.2 {0}	0 {0}			67 {0}	70 {0}	35.27 {0}	
7	28.26 {0}		62.38 {0}					
8	35.27 {0}							
9	284.1 {0}	0 {0}				82.23 {0}	284.1 {0}	0 {0}
10	298.3 {0}	0 {0}				99.76 {0}	298.3 {0}	0 {0}
11	318.1 {0}	0 {0}				128.6 {0}	318.1 {0}	0 {0}
12								
13	60 {0}			0.002824 {é↑	89 {0}		60 {0}	
14	14.73 {0}			0.0009609 {é↑	57.11 {0}		14.73 {0}	

Arrays Table: Main

	$\rho_{4,i}$ [lb$_m$/ft^3] {[]}	$\omega_{4,i}$	$W_{p2,i}$ [Btu/s] {[]}	$W_{p3,i}$ [Btu/s] {[]}	$W_{p4,i}$ [Btu/s] {[]}
1			0.3359 {0}	-350.1 {0}	-350.1 {0}
2					
3	62.43 {0}				
4					
5	62.38 {0}				
6					
7					

Arrays Table: Main

	$\rho_{4,i}$ [lb_m/ft^3] {[]}	$\omega_{4,i}$	$W_{p2,i}$ [Btu/s] {[]}	$W_{p3,i}$ [Btu/s] {[]}	$W_{p4,i}$ [Btu/s] {[]}
8					
9			-5365 {0}	-4723 {0}	-4723 {0}
10			-3117 {0}	-2744 {0}	-2744 {0}
11					
12					
13		0.002824 {é↑			
14		0.0009609 {é↑			